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GEOGRAPHY FOR SECONDARY SCHOOLS

AT the recent meeting of the Association of American Geographers in Baltimore, a three-hour session was devoted to a discussion of Geography for Secondary Schools, under the leadership of the Editor of the JOURNAL. The conference was participated in by over thirty geographers and teachers of geography, and an active discussion was maintained for the entire evening. At the end, the conference found itself seemingly in general agreement with the points outlined in the syllabus used as a basis for discussion and reprinted below. It was voted by the Association to appoint a representative committee of five to consider the matter further, with a view to furthering the cause of rational geography in secondary schools. This committee will be appointed by the Council of the Association and its membership will be announced in the JOURNAL.

SYLLABUS

1. Present Character of Secondary School Geography.
   Largely physical geography with or without laboratory work; some commercial geography causally taught; some commercial geography taught in an informational way.
2. Modern Physical Geography.
   (a) Generally includes earth in space, atmosphere, lands, oceans, and some treatment of isolated life responses or of distribution of larger life conditions.
   (b) In better secondary and normal schools includes much laboratory work on earth in space, lands and atmosphere. Much of this is forced in character and a good deal of it not geographic in nature.
   (c) Two Groups of Courses.

1. Systematic, following outline like College Entrance Examination Board Requirement and most texts.
2. Informational, including a large number of facts and principles unrelated to systematic development of subject.

3. Advantages of Present Course.
   (a) Systematic and capable of being taught to large classes in a more or less mechanical way.
   (b) Can be made definite and laboratory tasks can readily be assigned.
   (c) Supply of well-trained teachers, good texts and laboratory guides constantly increasing.
   (d) Gives excellent training in scientific study of problems large in scope and requiring different form of study from most problems taught through experiment or observation with or without microscope.
   (e) Readily prepares for college entrance in a subject that can now be studied in a more advanced way in many colleges and normal schools.
   (f) College and secondary school work closely united.
   (g) Has aroused interest in study of local physical geography.
4. Disadvantages.
   (a) Over-systematic and often unreal to pupils. Deals with subject as if all students were preparing to be geographers or to enter colleges giving advanced work in systematic study of land forms.
   (b) Does not meet real needs of most pupils. Pupils entering college are criticised for lack of knowledge of geography of world. Those not going to college generally get no study of any areas of the world after 7th year in grammar school.
   (c) Point of view in study of lands incapable of being personally applied to pupils over large areas.
   (d) Too advanced and too detailed for most pupils. Detailed classification of land forms requires knowledge of structural geology and ability to interpret solids for which pupils are not prepared.
   (e) Laboratory problems deal with representations of things and not with things. Form of representation, even contours, hard for inexperienced person really to follow.
   (f) Similar courses in normal schools do not give students preparation to teach the phases of geography they must go out to teach in elementary schools.

(g) Physical features not located are studied as puzzles or tasks. Work does not arouse interest. Pupils may recite glibly, but have no usable knowledge of subject.

5. Needs of Pupils in Secondary Schools in Reference to Geography.
   (a) Course that will best prepare for after life within or out of college.
   (b) Phase of geography most used will be regional geography in some form.
   (c) Work should not only be informational, but personally useful, and yet systematically presented so as to give training in scientific study of subject.
   (d) Regional geography necessary as basis for work in history, in ancient or modern literature, in economics, in commerce, in fact in any topic dealing with distribution of phenomena.
   (e) If regional geography be not studied in secondary schools, will never be secured except by those few pupils who go on to those colleges where regional work is being given.
   (f) Work should be geographically sound, scientifically presented, but not necessarily as it would be to a group of pupils who were preparing to go on to higher courses in the subject or in preparing for advanced scientific geography work.
   (g) Present popular interest is in commercial geography because of its practical value.

6. Content of Most Valuable High School Work.
   (a) Should deal largely with regions—say, United States and Western Europe.
   (b) Regional study of high school should be more advanced and more scientific than any work possible in elementary schools.
   (c) Work should begin with study of those phases of physical geography which are necessary as a basis for systematic, causal, regional geography. Physical geography is not therefore an end in itself, but a means to an end.
   (d) Work should find its application and use in scientific, causal study of political and commercial geography, in geography of life, in a large way.
   (e) Such a course would be a compound of selected phases of present physical geography and of principles of commercial geography, with

special study of selected regions as wholes. Course should not be a collection of scraps, but a united, well-knit whole.

(f) Should be so taught that any pupils can study any other region alone in similar scientific way.

(g) Advantages gained from laboratory study of present physical geography should not in any way be sacrificed. Laboratory work should be a large factor in course, to include study of earth in space, elements of map reading, larger features of climate, larger land forms, as plains, plateaus, volcanoes, seashores, mountains, etc., ocean currents and waves as related to harbors and trade routes; general maps showing distribution of population, nationalities, products, industries, etc.

(h) Laboratory work should include study of special maps, such as those in Diercke or Sydow Wagner's Schulatlas, as much as or more than weather maps and United States Geological Survey topographic maps. Should include training in atlas work, in reference work and in field work.

(i) Such a course would best, perhaps, be divided into parts; (1) physical geography in which only those phases of the subject should be included which later will be needed and those studied so as to suggest their application, and (2) regional geography in which given regions are studied systematically from larger topics of position, climate, surface, etc., to a climax in economic and social phases.

(j) Such a course can be as "disciplinary" as present work, is more needed as a preparation for life in school or out, is more personal and will meet the approval of superintendents and parents because more practical.

7. Possibility of such a Course.

(a) Inquiry has shown general dissatisfaction with present work among geographers, geography teachers, superintendents, principals and teachers. The National Education Association has appointed a committee of seven to study this subject.

(b) Time is ripe for a change.

(c) Such a change can be more readily accomplished to-day than the change to present physical geography was fifteen years ago; because:

1. Some colleges and some normal schools are already giving such courses and are preparing teachers for such work. Supply of teachers will be assured.

2. Value of laboratory and field study has been proven, and teachers will not go back to merely informational cram work as of old.
3. Supply of special and general maps and atlases is good and constantly increasing.
4. Chief lack is proper text-books more advanced than elementary school texts, less inclusive than the encyclopedic reference books like Mills' International or Chisholm's Handbook. This need will undoubtedly promptly be met by publishers as soon as change is seen to be imminent.

8. General Conclusion.

Such a combined course, or one on similar lines, would retain all the advantages gained from the modern study of physical geography, would avoid many of the difficulties, would be more generally adapted to pupils' needs, would be equally adapted to college entrance requirements from standpoint of training secured, would give a better foundation for work in college or for general study in related fields, would allow for causal study of commercial conditions and relations, would appeal to the public, and can at once be undertaken by trained teachers.

AN EARTHQUAKE IN PERSIA.—On January 23 the seismographs, or self-recording earthquake instruments, in this country and elsewhere recorded an earthquake of some magnitude on that date. The records seemed to indicate the seat of the shock as in Persia or Turkestan. Not until February 17 was the suggestion confirmed, however. On that date word came from Teheran that the shock was in a province of Western Persia and that five or six thousand people had perished. This is an interesting illustration of the fact that even in the modern days of rapid communication there are many well populated localities that are not in "ready touch with the world."

THE FORESTRY PROBLEM OF THE UNITED STATES

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"How foolish does man appear to me in destroying the mountain forests, for thereby he deprives himself of wood and water at the same time."—*Humboldt.*

ASIDE from food, wood is without doubt the most essential material to human economics. It is indispensable to the progress of the race as civilization is built on it. In the United States nearly 450 board feet of lumber are used per capita; while in Europe but 60 board feet are used.[1] In the past twenty years the lumber cut has increased in the United States 94 per cent. and the population 52 per cent. Undoubtedly the rapid development of the country is due largely to the abundance of lumber.

In spite of the substitution of iron, stone, glass and cement for wood in many cases, there is more wood used to-day in the United States than ever before.

In twenty years, ending in 1900, the increased use of lumber is as follows:

In 1880 there were 18 billion feet used.
In 1890 there were 24 billion feet used.
In 1900 there were 35 billion feet used.

For example, more lumber is being used in the construction of ships than before the art of building steel ships was introduced, as more ships are being built. The steel, stone, brick and cement structures of the modern city require more lumber than the smaller wooden structure of the same city in its earlier history.

To supply the demand for wood, our supposedly inexhaustible forests are rapidly disappearing. It is estimated that there are left in wood lots and timber tracts not more than two billion board feet on an area of 500 to 700 million acres. The bulk of the forests left in the United States to-day are found in the southern and Pacific states. As fast as the timber has been cut from one region another has been invaded. The maximum cut of the north-eastern states was reached in 1870, and that of the Lake states in 1890. The southern states are now at their maximum yield, while the harvest of timber is well begun in the forests of the Pacific states.

At the present rate of consumption, the primitive forests of the United States will be exhausted in a comparatively few years. Nor is the prospect

[1] The statistics used throughout the article have been verified by the Forest Service, United States Department of Agriculture.

of getting the needed supply of wood from foreign countries favorable, as Europe alone consumes all the lumber that is exported by the countries which have more forests than required for home consumption. For this she pays the sum of $200,000,000:

United States and Canada	export	280,000,000	cubic feet
Russia	exports	420,000,000	" "
Austria	exports	240,000,000	" "
Norway and Sweden	export	400,000,000	" "
India and South America	export	60,000,000	" "
Total		1,400,000,000	" "

The following countries of Europe do not grow the needed supply of lumber:

England	imports	99%	of	the	lumber	consumed	or	529,500,000	ft.
Germany	"	24%	"	"	"	"	"	317,700,000	"
France	"	33%	"	"	"	"	"	105,900,000	"
Belgium	"	47%	"	"	"	"	"	63,540,000	"
Switzerland	"	35%	"	"	"	"	"	49,420,000	"

The annual forest products show the forests of the United States to be one of the chief sources of wealth of the nation.

ANNUAL OUTPUT OF FOREST PRODUCTS IN THE UNITED STATES

	QUANTITY	VALUE
Lumber .....ft. B.M.	40,000,000,000	$650,000,000
Firewood ..... cords	100,000,000	350,000,000
Shingles and lath	.....	37,000,000
Hewed cross-ties .....number	78,000,000	35,000,000
Cooperage stock	.....	32,000,000
Gum, turpentine and rosin	.....	25,000,000
Pulp wood .....cords	3,000,000	15,000,000
Tanbark and extract	.....	10,500,000
Telephone and telegraph poles	4,000,000	9,000,000
Round mine timbers .....cubic ft.	170,000,000	7,500,000
Timber exported (unsawed)	.....	5,000,000
Wood used for veneer .....ft. B.M.	350,000,000	3,000,000
Wood used for distillation .....cords	1,200,000	3,500,000
Maple sugar and syrup.....	.....	2,500,000
Posts, piles and other products	.....	15,000,000
Total	.....	$1,200,000,000

The effect of a scarcity of lumber upon the growth and development of the country can not be estimated. Wood is so indispensable and so universally used that an insufficiency would affect nearly every business interest. For example, goods and produce must be marketed. To furnish

boxes and barrels for this purpose, it is estimated that fully 10 per cent. of the entire lumber production of the United States is used.

A timber famine would seriously affect transportation. Nothing which is economical or desirable has been found to substitute for the wooden ties of the railroads. For the renewal and construction of new tracks annually, the railroads of the United States use the equivalent of 4,000,000,000 board feet. An acre of forest yields about 200 ties. To supply the railroad with ties alone one-half million of acres of forests are denuded annually, and as many more are required to supply bridge timber, fence posts, telegraph poles, building material and car material. An advance price in lumber would cause an increase in the rate charged for transportation. To-day the railroads of the United States carry 21,000,000,000 passengers one mile in a year; they transport 180,000,000,000 tons of freight one mile in a year at an average rate of ¾ of a cent per mile. They collect and disburse annually about $2,000,000,000 of which $800,000,000 goes to labor.

The mining industry is absolutely dependent upon the forests:

To mine Anthracite coal	44 million cubic feet of round timber are required (about ⅛ cubic feet for every ton)
To mine Bituminous coal	91 million cubic feet of round timber are required
To mine iron ore	13 million cubic feet of round timber are required
To mine precious metals	15 million cubic feet of round timber are required
Total	163 million cubic feet of round timber are required

Aside from the commercial value, the forest exerts a powerful influence in checking the destructive forces of nature, since it forms a protective blanket over the earth. It breaks the velocity and tempers extreme hot and cold winds and thus protects the crops and makes life more endurable.

The forest has also an effect upon the physiographic form of the drainage basins of the mountain streams, in that it protects them from the wind and water erosion. The ridges that are densely covered with forests retain their convexity and in consequence hold the maximum amount of precipitation on their highest portions from whence it ultimately seeps through the soil and gives the streams a sustained flow. Erosion is prevented by the fine roots holding the soil together, while the humus and litter of the forest floor serves as a sponge to absorb and hold the water. The latter are important since it is the amount of water that passes into the soil and not the amount of rainfall that makes a region a garden or a desert.

The non-timbered mountain has a characteristic concave configuration due to erosion which causes their slopes to become more precipitous. This

condition with the absence of an absorbing forest floor permits the precipitation to escape over the surface and flood the streams. Europe has experienced the disastrous results of denuding the hills and mountain sides of their forests, and France and Switzerland have been loudly protesting against it since the beginning of the eighteenth century. Indeed, France has a law which compels the owner of a mountain slope to reforest it if denuded; should he fail to do so, the government buys the land and plants the trees for the good of the community.

The people of the United States have destroyed their forests with no regard to consequence or to future needs. In the pioneer days it was necessary to clear away the forests to make way for agriculture, and he who slashed down the most forest and cleared the land most thoroughly was considered a public benefactor. No discrimination was made with regard to the location of the forest or the kind of soil upon which it grew. Land was cleared, and the trees often purposely burned with little or no thought as to whether they were growing at the sources of rivers or whether the land was fitted for agricultural purposes. This wholesale destruction of the forests has gone on in the United States for nearly a century and a half, and the result is a threatened wood famine, disastrous floods which destroy millions of dollars' worth of crops and buildings, and great areas of once productive land made barren from the lack of water.

Fortunately the timber supply, unlike coal, oil, iron, or copper can, if exhausted, be renewed. Far-sighted men believe the forest problem to be the most vital internal problem in the United States, and have labored to make both government and people realize the importance of preserving and harvesting trees much as the European countries have done for years. The national government, until recently, placed no special value upon the forest of the unused areas in the United States, and have practically given them away to lumbermen or any who desired to gain possession. To-day the government is buying back much of this same land, especially where it is upon the uplands, to reforest it. Congress has seen the necessity of setting aside over 165 millions of acres for "National Forests" for the purpose of regulating the stream flow and demonstrating to private owners, through expert foresters who have the national forests in charge, how trees may be cut without endangering the future of the forest. The scarcity and advanced prices of lumber have awakened both private and public interest in forestry. Those most interested in lumber are buying forests and working them under the direction of trained foresters, national and state governments are forming forest policies and the art and science of growing trees is taught in many of our schools and colleges.

Suggestive Studies [1]

1. For what purpose is wood used in your locality? What materials are being substituted for lumber?

2. Do you know of railroad ties, telegraph poles, fence posts and shingles being treated with a substance like creosote to prevent decay?

3. Learn the price of lumber in a house that was built about twenty years ago and compare it with the price paid for the same grade of lumber to-day.

4. About what percentage of your state is covered with forest? Inquire as to the percentage of waste in lumbering. What precautions are taken to prevent forest fires? Discuss the dangers of campfires in forests.

5. Do cattle eat seedlings? Are there times when foresters do not allow cattle to pasture in the national forests?

6. Is the outlook for a needed lumber supply in your locality such that the prices are liable to fall or rise?

7. Does the price of lumber in your state to-day warrant the planting of trees? (1) On fertile soil, (2) on poor soil?

8. What are the forest products of your state? Their value?

9. Do floods occur and streams dry up more frequently than they used to in the region in which you live? Have the uplands of the stream been denuded?

10. Can you explain how it is that reforesting an area can restore streams that have disappeared for some time?

11. The levees of the lower Mississippi River have had to be built higher as the forests at the source of the river have been destroyed. Expert engineers predict that levees can not be made high enough to hold the water and that the lower Mississippi Valley will, in consequence, become a swamp unless the headwaters of the river are protected with trees. Is the work of reforesting the uplands of the river an interstate or national affair?

12. It is necessary that every drop of water in the Rio Grande River be "reservoired" to irrigate Colorado, New Mexico and Old Mexico. Is the protection of the source of this river an interstate, national or international work?

[1] For needed information to familiarize yourself with the forest conditions of your own state, apply to your state forester or to the Forester of the Forest Service, U. S. Dept. of Agriculture, Washington, D. C.

13. Have you observed the power that trees have of preventing sand from drifting? Have you seen them planted along a sandy coast for this purpose?

14. Are trees planted as wind breaks in your locality?

15. Is the rate of taxation in your state the same for timbered as for agricultural land? Is it just to tax land that produces a crop once in forty years at the same rate as that which produces a crop yearly?

16. Would it be an advantage to exempt forests from taxation and impose a tax on trees felled for wood and timber?

17. Trees planted upon poor soil restore it to fertility in about thirty years. Would it aid materially in solving the timber problem if each of the 5,674,878 farmers of the United States who have poor or worn-out land would plant a half acre of it annually with trees?

18. Request a lawyer of the locality to explain some of the more important laws that affect the forests.

19. Discuss the statement:—"It is the essence of forestry to have trees harvested when they are ripe, and followed by successive crops."

20. Request a trained forester of the locality to take you to the forest for a practical demonstration of some of the principles of forestry.

21. Do you believe that "Forestry is not a local question; it is as wide as American Jurisdiction. It is not limited by latitude or longitude, by state lines or thermal lines, by rivers or mountain ranges, by seas or lakes"?

22. Is the opinion well founded that forestry is as much a national question as the maintenance of an army or the construction of a navy?

SCHOOL EXCURSIONS AS A MEANS OF TEACHING PATRIOTISM IN OUR PUBLIC SCHOOLS

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THE patriotism of the Swiss people is proverbial. Every tourist visiting this little country among the Alps experiences the feeling that here, if anywhere on the globe, the people are truly patriotic. Even small children, when asked what they love most, will immediately answer, "Switzerland." To them it seems strange that such a question should be asked.

In the year 1908 I put this question, "What do you understand by patriotism?" to one hundred pupils in the sixth to eighth grades (inclusive),

in the public schools of one of our large cities of the middle West. Forty-seven of these children had absolutely never thought about the word, much less could they give its meaning. Thirty-nine answered that the soldier going to battle showed true patriotism; the remaining fourteen invariably replied that when we celebrate the Declaration of Independence, July 4th, we are patriotic.

Are these the highest ideals of patriotism we as teachers can instil in the minds of the American youth?

"Well," I hear you answer, "in the middle West the population is chiefly alien." The following table shows the nationality of the parents of the above one hundred children, who were all born in the United States:

TABLE SHOWING NATIONALITY OF PARENTS

Father and Mother American	Father American Mother Alien	Father Alien Mother American	Father and Mother Alien	Total Number of Parents
163	17	9	11	200

Involuntarily we compare the United States with Switzerland and wonder why the people of the latter country are more patriotic. Most of us agree that it is a matter of education.

The schools of Switzerland from the lowest grade in the common school, up through the university, see to it that the children gain a first-hand knowledge of their native land. School excursions under the guidance of competent teachers are a vital part of the school curriculum. Half-day excursions to some near-lying historical landmark or natural scenic wonder are frequent occurrences in every school. A one-day excursion is undertaken every semester, and, to cap the climax, a two-day excursion is indulged in every year. On these occasions, the pupils and teachers alike see with their own eyes the high mountains and wonderful glaciers, of which they so often have read and sung. They pick the alpine flowers and slake their thirst in the cold glacier streams. But best of all, they are imbued with that spirit of grandeur and majesty which only those who have come close to nature can experience.

Is it strange that emigration from this little mountain stronghold diminishes every year, in fact it never was great, and that the Swiss invariably returns to his native land to live and die for same?

Can we not learn a few lessons from Switzerland? Our children sing, "I love thy rocks and rills," without any meaning whatever; in fact, thousands do not know what a rill is, and still more have never seen one. We tell them of the beautiful, historic Rhine, the wonderful Alps, and occasionally mention Niagara Falls and the Yellowstone National Park, but these are mere words passing in one ear and out of the other. Somehow or other the Rhine with its castles and vineyards is better remembered, and the more imaginative pupils make a secret resolve to visit Germany some day.

Why not follow the example of the Swiss people and let our children with their own eyes see that we have rivers larger and more beautiful than the Rhine; mountains surpassing the Alps in height and grandeur, and natural wonders which people from the other side of the globe make special trips to see? We refer to the Yellowstone Park. In fact, I propose that we make the children of our public schools personally acquainted not merely with their own locality, but also with our greater scenic wonders, *i. e.*, Crater Lake, Oregon; the Yosemite Valley, California; the Yellowstone Park; Niagara Falls, and numerous other world-famed spots in this great land of ours. Moreover, some of our great centers of industry, the iron and steel works at Pittsburg, the big flour mills in Minneapolis, the cotton and woolen mills of the New England States, ought to be within easy reach of the children in various sections of the United States.

"The children do not have the money to travel," but, I say, the country ought to, and could defray the expenses of these excursions. The various railroads and steamship lines, with proper coöperation from the Bureau of Education, could give such rates that every state could defray the expenses of teachers and pupils, at least in part. Other countries, Germany for example, are doing this, why not the United States?

"The transportation companies will lose money," you say. They will gain more than they lose, for thousands of these children, and their parents also, will acquire a taste for travel, which they never would have had without these school excursions. Thus traffic would be increased.

Moreover, the greater intelligence of our future citizens, and the culture gained by contact with other places and people, would more than repay this extra expenditure by the state. The actual contact with the sublime in nature and the seeing of our natural resources will do more than years of schoolroom routine to teach our children that true love for country which is the foundation of a strong nation.

NOTES

THE SOUTHERN CAMPOS OF BRAZIL.—After passing Sorocaba, the traveler has his first view of the typical Brazilian campos. For days and days, west, northwest, southwest, he may journey over these wonderful rolling prairies, with their millions of ant-hills, stretching on and on, monotonous yet constantly changing; brown and dry and unattractive here; thickly forested there; elsewhere covered with low, scattering scrubby trees and shrubs which give the appearance of a New England apple orchard, abandoned, with its trees dying or dead. These campos cover fully three fourths of all Brazil. For miles and miles the train runs through open country, covered with coarse, grayish-brown bunch-grass, and perhaps not a tree in sight. In the distance these brown fields look like our own pastures, dried by the August sun. Then suddenly a change comes, and a dense tree-cover shades the tracks, the forest-edge being as sharply marked against the open country as if a man had been at work there with his axe. Through the woods the train hurries on, the tall trees hung with low bunches of gray moss ("old man's beard"); covered with creepers which trail down like thick ropes; carrying parasitic plants of many kinds on their branches, and down on the forest floor a thick undergrowth of low shrubs, ferns and bamboo. One form of the latter sends up long, thin stalks which bend down of their own weight and, reaching the ground again, form a complete and very symmetrical arch which has the appearance of a wire trellis, overgrown with vines. After the forest may come an immense stretch of grass-land, with scattering trees and underbrush or stemless palms, and this may be followed by more forest, or by a wholly treeless region. Thus the day goes on, monotony, but variety; a constant repetion of the same landscape, but a constant change. Very thinly settled these campos are. Sometimes for an hour one may not see a house or even a living thing. Then comes an adobe hut, with a thatched roof, a few banana and orange trees; a little patch of poorly cultivated ground, with sugar cane, beans and manioc; or a collection of somewhat better houses, around some railroad station; or, perhaps, in rarer cases, a larger fazenda, with its outhouses and cattle and grove of trees. Fire has left its mark on vast stretches of these campos, where tall, bare tree-trunks are standing, much as on the pine barrens of Newfoundland. Smoke from these fires may often be seen in the distance, or the train may run for miles through stretches of burning grass. After the fire comes usually a dense growth of coarse ferns, and then the grass clumps of the campos.

In the afternoon, when the sun is getting low, the campos are at their best. The heat and glare of the noon hours are forgotten. The air is cool, dry and bracing. The long shadows and soft colors give these immense plains a beauty which lives long in the memory. An occasional araucaria, the characteristic tree of southern Brazil, is seen here and there. The birds come out of the thickets, the insects begin to fly about, and the dry and hot campo, which has been singularly dead all day, wakes up.

The gap between the Sorocabana and Sao Paulo and Rio Grande Railways must now be crossed on mule-back, or by trolley. The Brazilian "trolley" is not our trolley, but it is almost as useful a means of conveyance. Imagine a buckboard, of the crudest description, built in the heaviest fashion, with a small seat for the driver in front, and a seat for two, or, at a pinch, three, passengers behind, drawn by four mules—and you have a picture of the trolley that now carries passengers across the trail where in less than a year regular trains will be running, and where in time there will be through cars from the Rio de la Plata to Rio de Janeiro. Wonderful conveyances these trolleys are. They stand the roughest roads, and lean over until one's baggage slides out, but they never upset. They serve their purpose so well that every one who travels on a trolley down here across the Brazilian campos learns to respect the vehicle.

For almost two days the journey was continued over the old trail leading from Paraná up to Sao Paulo, across the campos, with their great open stretches and their belts of trees; their lonely herds of cattle and their widely scattered huts; their thousands upon thousands of square miles of wasted land. Over this trail come the pack-trains of mules going north to the railroad. Over this trail come the great covered prairie-schooners from Paraná, filled with the products of the south, drawn by five or even ten horses, carrying whole families of Polaks with their cooking utensils and other household goods. These people camp where night overtakes them, prepare their meal of black beans, farina, sometimes a little dried beef, and the inevitable coffee, and go to sleep in or under their wagons. The national foods of Brazil are singularly adapted to such simple and ready preparation, and are palatable and nourishing. Where one finds black beans, and farina, and rice, he is sure of a good meal, and one that will sustain him for a long time. Farther north, where palms are common, a much-used and delicious vegetable is boiled young palm leaf shoots. Over this same Paraná trail come the clumsy ox-carts, their solid, spokeless wheels made out of a large tree trunk, the wheels and the axle turning

together with a loud creaking sound which is heard for miles across the open country. Over this trail, too, come great droves of black pigs, driven northward to the railroad, to be shipped by train to Sao Paulo. Driving across the campos at night one comes across, at some point where there is water and wood, an encampment of these traveling merchants and drivers, sleeping on the ground, the animals turned loose to graze, and the light of the camp fire illuminating the picturesque scene. Occasionally there is a rough shelter, free to all passers-by, in which the animals and their drivers spend the night.

The one question which is borne in upon the observing traveller, every hour of the day, is this: What is to be the future of these vast campos? To-day they are simply examples of a colossal waste—waste of space; waste of soil; waste of rainfall; waste of sunshine. Fire devastates them, far and wide. Coarse grass, not eaten by cattle, covers square mile after square mile. Only here and there, at long intervals, at some lonely hut, is there any attempt to make the soil produce anything except the natural grass; only occasionally is there seen a small herd of cattle or horses; only at long distances apart are there towns. Yet these great campos certainly have a future. The railroad cuts and embankments are prophetic of that future. Nature has provided a climate better than that of much of the western United States. The high temperature and abundant rainfall of the summer are followed by glorious, bright, warm days and cool nights in the dry winter. There are drawbacks, of course. The dry season, the heavy thunderstorms, the hail, the frost are to be reckoned with. But where the red soil is plowed and worked, it yields good grass for cattle and horses. Even now, thousands of cattle and horses could be pastured where all is still waste land. Where the people have tried, in the towns and around their huts, vegetables are successfully raised to-day. The problem is essentially one of time, and labor, and intelligent adaptation of crops to the climatic conditions. Cattle and sheep raising, and later farming, will come. Experiment stations must be established at various points. Wheat and cereals of different kinds can surely be found which will do well under the conditions of climate and soil which here exist. So far, practically nothing has been done in this direction.

But these campos are no more unpromising than was, a few years ago, much of our own western country, where to-day are seen fields of wheat, or of corn, or of alfalfa. The shriek of the locomotive will mean the beginning of the development of this country. A farming and cattle-raising popula-

tion must come in, as it came into our West. What is needed is a large influx of sturdy peasants from the north of Europe, who will not be afraid of hard work; who will intelligently till the soil and care for their crops; who will adjust their crops to their environment.

He who travels to-day across the southern campos of Brazil will have his horizon immensely widened; will catch a spirit of South American growth and development not to be found in books; will have a vision of the time, in the not far distant future, when these campos will be covered with farms, and support a prosperous, thrifty and intelligent population.—From *Bulletin of the American Geographical Society,* November, 1908.

RACES IN THE UNITED STATES.—A special study of the linguistic conditions in Chicago well illustrates our racial heterogeneity. Among the people of that great city—the second in size in the United States—fourteen languages are spoken by groups of not less than ten thousand persons each. Newspapers are regularly published in ten languages; and church services are conducted in twenty different tongues. Measured by the size of its foreign linguistic colonies, Chicago is the second Bohemian city in the world, the third Swedish, the fourth Polish, and the fifth German (New York being the fourth). There is one large factory in Chicago employing over four thousand people, representing twenty-four distinct nationalities. Rules of the establishment are regularly printed in eight languages. In one block in New York, where friends of mine are engaged in college settlement work, there are fourteen hundred people of twenty distinct nationalities. There are more than two thirds as many native born Irish in Boston as in the capital city, Dublin. With their children, mainly of pure Irish blood, they make Boston indubitably the leading Irish city of the world. New York is a larger Italian city to-day than Rome, having five hundred thousand Italian colonists. It contains no less than eight hundred thousand Jews, mainly from Russia. Thus it is also the foremost Jewish city in the world. Pittsburg, the center of our iron and steel industry, is another tower of Babel. It is said to contain more of that out-of-the-way people, the Servians, than the capital of Servia itself.

—From *The Atlantic Monthly,* December, 1908.

THE SCOTTISH HIGHLANDS.—Although the Lowlands of Scotland have come to be a very important manufacturing center, the Highlands have practically no manufacturing. One reason, of course, is that there is no coal, and that it is difficult to bring this heavy fuel into the mountain valleys. A second reason is that there is practically nothing to manufacture

excepting wool and grain. The former, scattered widely over the Highlands, is most easily gathered into small lots for shipment to the Lowlands and elsewhere. The latter is locally manufactured to some extent; and among the most notable of the manufactories of the Scottish Highlands are the whiskey distilleries.

While coal is absent, there is an abundance of water power. The heavy rainfall of this damp climate supplies plenty of water, and in numerous places this falls out of the hanging tributary valleys, cascading down the ice-steepened slopes of the main valleys. But this water power, due largely to glacial action, is for the most part allowed to run to waste; for there is almost no local use for it.

The few people who dwell in this unproductive region show distinct evidence of the influence of the surroundings upon their very character. The persistence and frugality of the "canny Scots," of which the Englishman often complains, find ample explanation in the surrounding conditions. It seems, of necessity, that they must overwork and undereat, both of which conditions would tend toward persistence and frugality, as well as toward the development of strong will, for which the Scotch are also noted. The Highlander seems to be stolid, in some cases even to the extent of stupidity. He is unimaginative, and lacks buoyancy of spirit. These facts were often brought out clearly when attempts were made to enter into casual conversation with the peasantry. Frequently, a passing "good morning" brought no reply, or at most, a grunt, or a nod. There seemed little evidence of the presence of generous disposition; and, in fact, there was little reason for expecting such a disposition under the conditions amidst which they lived.

On almost every hand there was clear evidence of a general lack of enterprise; and surely, with such surroundings, there is little basis for development of a high degree of enterprise. This condition finds many illustrations in numerous directions, though perhaps in no way better than that supplied at the tourist resorts. Here, often in villages of a fair size, neither telephone nor electric lights were to be found, and at many of the large, well-patronized summer hotels one was forced to light his way to his chamber by use of the candle, although from the window of the room one looked out upon a noisy waterfall, which, at slight expense, could have been made to develop the necessary power for electricity. Perhaps in our own country we are over-prodigal in the production of this kind of luxury; but, whether this be so or not, the Scotch are surely very backward in their development of what Americans have come to consider almost necessities.

One is struck by the physique of the Scottish Highlander. This fact finds ready explanation in the necessary continued physical exercise and in the probable elimination of the weaker members under such severe conditions of life.

Altogether, a visit to the Scottish Highlands leaves, as one of its most distinct impressions, the conclusion that this is, geographically, just the region for such deeds as Scottish history records, as well as for the Presbyterian reaction from it. It is, moreover, an excellent training ground for a race of people qualified by physical strength and mental development for successful competition in other regions offering greater opportunities than this rock-bound country of clouds and mists.—From *Bulletin of American Geographical Society*, December, 1908.

Some Suggestions as to Geography Teaching.—The country teacher will do well to consider how much preliminary work has been done for her before she takes the pupil, for while it can not be assumed that all country children have all these conceptions, it is a fact that they possess a perfectly amazing stock of the most essential of them. The fact is, the country child can not escape the percepts which make up these general notions. And with these, in many instances, they bring clear ideas about the relation of some of the earth's forces. Now these primary conceptions, clarified and classified, as they soon are by the intelligent teacher, furnish the apperceptive tentacles with which her pupils grasp new ideas in their proper relations. It is difficult for adults, not to say teachers, to understand how much children are dependent upon things they have seen to interpret those things they have not seen. The observation of neighborhood facts *must* precede the study of distant places. A definite knowledge of home surroundings—hills, streams, agriculture, manufacturing, and commerce—must be the pupil's introduction to the same topics when studied in the world abroad.

One of the most beautiful and perplexing things about geography is that it is not *a* subject of study at all. You can not shut it up between the leaves of a book and put it on a shelf and say "Stand there, now, while I hear the history class recite." It positively refuses to stay put. It ramifies; it percolates; it trickles down through everything you try to teach. And a teacher who does not realize this, but tries to isolate the subject, to make geography a wall flower, to give it the social stare when it obtrudes in arithmetic, history, in language, as much as to say, "We may have met somewhere, but I can not remember you now"—such a teacher will kill

interest in any lesson she tries to teach, because she does not perceive the difference between the quick and the dead.

—From *Normal School Quarterly,* October, 1908.

THE CONSUMPTION OF SUGAR IN THE UNITED STATES.—The consumption of sugar per capita in the United States in 1907 was 82.6 pounds and the total amount used in the United States was 22 per cent. of the world's product of sugar. More than two thirds of the sugar imported into the United States comes from Cuba, and the sugar imported is nearly three times the amount of cane and beet sugar raised in the United States.

THE COMMITTEE OF SEVEN OF THE NATIONAL EDUCATION ASSOCIATION.—Mention has already been made in these columns of the appointment of a committee of seven by the science section of the National Education Asociation, to consider the question of Geography for Secondary Schools. This committee consists of Professor J. F. Chamberlain, Los Angeles Normal School (Chairman); Professor Mark Jefferson, Michigan State Normal College; Professor W. C. Moore, Mt. Holyoke College; Mr. R. H. Whitbeck, State Model School, Trenton, N. J.; Mr. W. H. Snyder, Hollywood High School, California; Mrs. Martha K. Genthe, Hartford, Conn.; and Mr. Milton W. Field, Milton Academy, Milton, Mass.

THE PLACE OF A TEXT-BOOK IN GEOGRAPHY TEACHING.—A good text is necessary for successful teaching above the primary grades. One should be chosen that starts with the child's environment and goes thence out to lands unknown, also one that is carefully adapted to the development of the child. Pupils in upper grades should do much reference work, each one contributing something of his own to the lesson, either as a specially prepared topic, or in response to thoughtfully put questions. Pupils work much better when they feel the responsibility of a specially assigned subject, than when all prepare the same lesson from the same text. The practice gained in organizing material from several sources, and then standing before the class and presenting it in clear, concise language, is of inestimable value. A sixth-grade lesson recently observed at the training school, offered special topics on Famines in India, Farming in India, The Religion of the People of India, which were listened to attentively by the class, and were remembered, as shown by questions put to the class on the following day. The gain which pupils make in their reading habit as soon as they can work out these special topics for themselves is very marked in the middle grades.—From *Normal School Quarterly,* October, 1908.

SOME GEOGRAPHICAL ASPECTS OF THE NILE. In the rainless climate of this region, weather, as we know it in Northern Europe, may be said to be non-existent—one day is almost exactly like the next and the one before it. The flood may be a little higher or a little lower than in the previous year; occasionally it may fail or be dangerously high, but in the course of centuries these slight variations are of small effect, and the conditions of life in Egypt are exceptionally constant; a water supply with a regular seasonal variation, no rainfall, a warm climate in which vegetation can grow throughout the year, if the necessary water is available, a rich alluvial plain on which water-channels can easily be formed; to these are to be added exceptional freedom from incursions of immigrant races of greater power, or higher organization. To the east and west lie the deserts which throughout the historic period have presented a barrier which could be passed with difficulty by one or two caravan routes. To the south the Nile valley itself presented a possible means of ingress, but one which could be closed, and was only employed to a moderate extent. The marshes of the Delta restricted traffic on the north, and even the road along its eastern margin to Syria, which has been trodden by numerous armies both leaving and entering Egypt, did not offer exceptional facilities for a ready entry into the country. Under these circumstances it is not surprising to find that the Egyptians at a very early period settled down to an agricultural mode of life, that they early perfected the ordinary operations which such a life required, and, having done so, preserved them with but little change until very recent times. Simple methods were well suited to the unvarying conditions among which they lived, and there was no incentive or necessity which might compel them to modify them. This people furnishes in a very marked degree an example of an organism growing in an unvarying environment to which it had early adapted itself and its mode of life.

To the geographer such a case is especially interesting, and during recent years the archaeological exploration of the country has brought to light a store of information concerning the ancient history of the Egyptians, their customs, and their mode of life which may be profitably studied in relation to their physical environment. But this is a very wide subject, and I will only draw attention to a single aspect of it which is directly connected with my own work in the country—the measurement of the land. The annual flood, rising in July within a few days of the same date year after year, and falling in October with equal regularity, has, from the earliest times, caused an invariability in the field-seasons which

must have reacted on the character of the people. This unvarying cycle of their water-supply, of their agriculture, and consequently of their domestic life, combined with the freedom from immigration which the deserts and the Delta swamps insured, laid the foundation of that conservatism of custom and character which the Egyptian has always displayed. Nor has this greatly changed, and there exist to-day in every phase of Egyptian life, traits which have come down from early times almost unaltered.

—From *The Geographical Journal,* November, 1908.

CORK.—Cork is the outer layer of bark of an evergreen species of oak. The tree is cultivated principally in Portugal and Spain. When the tree is about 15 or 20 years old the first stripping takes place, but this first crop is too coarse in texture to be of use except in tanneries or for rough purposes. The second stripping, obtained 8 or 10 years later, is also too coarse for finer uses than for floats for nets. With each stripping the quality improves and is continued at intervals of 8 years until the tree is 150 years old.

During the last several years the French have begun to exploit the natural cork of Algeria, where they have found about 1,000,000 acres occupied by the cork oak. The largest forests are in northeastern Algeria and contain some trees with a circumference of more than 30 feet. Messrs. Thomas H. Kearney and Thomas H. Means, of the U. S. Department of Agriculture, give the following description of the cork-oak industry:

Only natural forests are exploited in Algeria, no attempt ever having been made to establish artificial plantations (as in Spain and Portugal).

In bringing a forest of cork oak into condition for exploitation the first step is to remove the layer of old or "male" cork which forms under natural conditions. This operation, which requires considerable skill, is performed in the spring when the sap is beginning to rise. The subsequent yield depends largely upon the way in which this work of "demasclage" is done. It is advisable to put back into place the layer thus removed, fastening it around the trunk by means of wire and leaving it there for about two years; otherwise the trees are very liable to injury from dry, hot winds and from fire. Wrapping the trees in this way also prevents a second development of the worthless male cork.

The new cork which now begins to form is alone of commercial value. It is deposited at the rate of from 0.04 to 0.12 inch annually, and the first harvest is taken when the layer of cork has reached a thickness of about

1 inch. Thereafter the cork is removed every eight or ten years, the later crops yielding a better product than the earlier ones. The expense of each harvest from a single tree is about 2 cents.

Individual trees differ greatly in the rate at which cork is formed. As a rule, the best product is that which develops most slowly. Rapidly growing cork is more abundantly veined with loose tissue, which diminishes its value. The cork is sometimes seriously injured on the tree by the ravages of ants, which build galleries in it. The tree has also other insect enemies.

The cork, when cut, rolls up into tubes of the size of the trunk from which it was taken. It is first pressed out into sheets, then boiled, and finally the crust of bark is removed by scraping. Boiling increases the bulk by about one fifth and renders the cork more elastic.

An acre of cork oak in full production yields a net annual revenue of about $2. The product from a single tree is worth from 4 to 10 cents a year after all expenses are deducted.

—From *The National Geographic Magazine,* October, 1908.

The Use of Maps in School Work.—Maps are of fundamental importance in geography study and the ability to use a map is one of the most important acquisitions to be secured from school geography work. Maps should not only be made foundational in all text study of geography, because no subject can be adequately approached unless it is placed somewhere and because maps are the best source for materials for study in various phases of the subject, but also because the ability to use a map is one of the best preparations for later life that can be given pupils during their school years.

Atlases and local maps are now cheap and easily secured. Pupils may have at their service after they leave school, the best sources of reference existing. A pupil should know the language of maps, their value and their weaknesses. He should be trained to use maps freely in reading the daily papers, books of travel and description, history and even fiction. He should realize that to read about a place indefinitely placed in a nebulous unknown land is not to get knowledge or even information. A region that is not definitely placed in relation to the reader's known world is as unreal as fairyland or Captain Kidd's island. The map habit therefore is an essential habit that all should acquire, at least to some degree, and pupils should feel as lost without a map either in reading or in travel as a traveller in foreign lands would be without a passport.—*R. E. D.*

REVIEW

EARTHQUAKES.—AN INTRODUCTION TO SEISMIC GEOLOGY. By William Herbert Hobbs, Professor of Geology in the University of Michigan; pp. 336. New York, D. Appleton & Co., 1907.

HOBBS' Earthquakes has come at a time when the public is deeply interested in the subject and when scientists are especially active. Few besides those directly concerned with such investigations are aware of the great strides that have been made in methods of studying seismic phenomena and of the newer ideas of origin and cause. The work of the physicist with his seismograph recording and interpreting disturbances at a distance together with that of the geologist studying the accompanying displacements and structural peculiarities on the ground are explained in sufficient detail to indicate the present scope and recent development of the subject. Professor Hobbs' long experience as a geologist and teacher enables him to present this difficult and obscure subject in both an instructive and an interesting way.

A chapter is given to the evolution of earthquake theory, one also to causes, and several to an elaborate discussion of unstable belts, faults, the nature of shocks, lines of heavy earth-shock, and related matters. As might be expected from a man of his training and views on earth structure, much attention is given to faults and lines of weakness. Perhaps the discussion and diagrams of these lines, not only the known but also the inferred and conjectural, may be regarded as an extreme view representing a condition and behavior that most geologists would feel is neither necessary nor probable. But the emphasis laid on fault movements and the general expression aimed at is doubtless well supported by the accumulating knowledge. Several chapters include descriptions of important earthquakes, one is given to danger spots in the United States, and the closing chapters cover seismographs and interpretation of records.

The book is a valuable addition to our works in English on this subject and is a suitable reference book for both high school and college.

C. P. B.